Incoming. C0150025

UTAH STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORY SERVICES
Environmental Chemistry Analysis Report

DEPT OF NATURAL RESOURCES - OGM
STEVE CHRISTENSEN
1594 W NORTH TEMPLE - STE 1210
SALT LAKE CITY UT 84114-1210 801-538-5350

Lab Number: 201504443 Sample Type: 04 Cost Code: 901B
Description: BEAR CREEK 1
Collector: JCH

Site ID: Source No: 00 | Organic Review:
Sample Date: 07/09/2015 Time: 12:50 | Inorganic Review: 08/18/2015
| Radiochemistry Review:
Dis. Cations: 178 mg/l 11.5 me/l | Microbiology Review:
Dis. Anions: 486 mg/l 11.7 me/l |
Total Wt: 664 mg/l %D = .9 |

TEST RESULTS:

Bicarbnate	242 mg/l	CO3 Solids	119 mg/l
Carb. Diox	3 mg/l	Carbonate	0 mg/l
Chloride	6.46 mg/l	D-Calcium	97.5 mg/l
D-Magnesum	80.6 mg/l	Hydroxide	0 mg/l
L-Sp. Cond	966 umhos	Lab-pH *	8.138
Manual pH *	8.218	O&G	0 mg/l
Sulfate	361.0 mg/l	T Vol Sol *	27 mg/l
T-Aluminum	3430.4 ug/l	T-Arsenic	1.376 ug/l
T-Boron	89.9 ug/l	T-Cadmium	0.239 ug/l
T-Calcium	97.5 mg/l	T-Copper	4.392 ug/l
T-Iron	4.61 mg/l	T-Lead	2.458 ug/l
T-Magnesum	80.6 mg/l	T-Mangan	54.613 ug/l
T-Molybdum	2.269 ug/l	T-Potassum	9.06 mg/l
T-Selenium	4.889 ug/l	T-Sodium	11.5 mg/l
T-Zinc	12.105 ug/l	T. Hardns.	574.9 mg/l
T.Sus.Sol *	269.0 mg/l	TDS @ 180C *	778 mg/l
Tot. Alk. *	198 mg/l		

QUALIFYING COMMENTS (*) on test results:

Manual pH.	Holding time was exceeded before sample delivery.
TDS @ 180C	Holding time was exceeded before sample delivery.
T.Sus.Sol.	Holding time was exceeded before sample delivery.
T Vol Sol.	Holding time was exceeded before sample delivery.
Tot. Alk..	Holding time was exceeded before analysis was completed.
TDS @ 180C	Holding time was exceeded before analysis was completed.
T.Sus.Sol.	Holding time was exceeded before analysis was completed.
T Vol Sol.	Holding time was exceeded before analysis was completed.
Lab-pH....	pH should be performed as a field test.
Tot. Alk..	Sample received with insufficient holding-time remaining for analysis.

UTAH STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORY SERVICES
Environmental Chemistry Analysis Report

Trace levels up to 0.2 ppb metals may be present in bottles

END OF REPORT

UTAH STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORY SERVICES
Environmental Chemistry Analysis Report

DEPT OF NATURAL RESOURCES - OGM
STEVE CHRISTENSEN
1594 W NORTH TEMPLE - STE 1210
SALT LAKE CITY UT 84114-1210 801-538-5350

Lab Number: 201504444 Sample Type: 04 Cost Code: 901B
Description: BEAR CREEK 2
Collector: JCH

Site ID: Source No: 00 | Organic Review:
Sample Date: 07/09/2015 Time: 12:35 | Inorganic Review: 08/18/2015
| Radiochemistry Review:
Dis. Cations: 171 mg/l 11.1 me/l | Microbiology Review:
Dis. Anions: 485 mg/l 11.5 me/l |
Total Wt: 656 mg/l %D = 1.8 |

TEST RESULTS:

Bicarbnate	204 mg/l	CO3 Solids	112 mg/l
Carb. Diox	1 mg/l	Carbonate	12.0 mg/l
Chloride	6.39 mg/l	D-Calcium	92.9 mg/l
D-Magnesum	78.3 mg/l	Hydroxide	0 mg/l
L-Sp. Cond	950 umhos	Lab-pH *	8.39
Manual pH *	8.223	O&G	0 mg/l
Sulfate	367.0 mg/l	T Vol Sol *	18 mg/l
T-Aluminum	2799.2 ug/l	T-Arsenic	1.387 ug/l
T-Boron	88.7 ug/l	T-Cadmium	0.134 ug/l
T-Calcium	92.9 mg/l	T-Copper	3.65 ug/l
T-Iron	3.59 mg/l	T-Lead	2.115 ug/l
T-Magnesum	78.3 mg/l	T-Mangan	44.506 ug/l
T-Molybdum	2.595 ug/l	T-Potassum	8.6 mg/l
T-Selenium	4.655 ug/l	T-Sodium	11.6 mg/l
T-Zinc	10.39 ug/l	T. Hardns.	554.0 mg/l
T.Sus.Sol *	158.0 mg/l	TDS @ 180C *	768 mg/l
Tot. Alk. *	187 mg/l		

QUALIFYING COMMENTS (*) on test results:

Manual pH.	Holding time was exceeded before sample delivery.
TDS @ 180C	Holding time was exceeded before sample delivery.
T.Sus.Sol.	Holding time was exceeded before sample delivery.
T Vol Sol.	Holding time was exceeded before sample delivery.
Tot. Alk..	Holding time was exceeded before analysis was completed.
TDS @ 180C	Holding time was exceeded before analysis was completed.
T.Sus.Sol.	Holding time was exceeded before analysis was completed.
T Vol Sol.	Holding time was exceeded before analysis was completed.
Lab-pH....	pH should be performed as a field test.
Tot. Alk..	Sample received with insufficient holding-time remaining for analysis.

UTAH STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORY SERVICES
Environmental Chemistry Analysis Report

Trace levels up to 0.2 ppb metals may be present in bottles

END OF REPORT

Client:	ALS Environmental	**Date:**	*30-Jul-15*
Project:	1520831	**Work Order:**	1507505
Sample ID:	Bear Creek	**Lab ID:**	1507505-1
Legal Location:		**Matrix:**	WATER
Collection Date:	7/9/2015 12:30	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Hexane Extractable Material--Gravimetric		**EPA1664**		Prep Date: **7/30/2015**		PrepBy: **BCH**
OIL AND GREASE	ND		6.1	MG/L	1	7/30/2015

Client:	ALS Environmental	**Date:**	*30-Jul-15*
Project:	1520831	**Work Order:**	1507505
Sample ID:	Left Fork	**Lab ID:**	1507505-2
Legal Location:		**Matrix:**	WATER
Collection Date:	7/9/2015 12:35	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Hexane Extractable Material--Gravimetric		**EPA1664**		Prep Date: **7/30/2015**		PrepBy: **BCH**
OIL AND GREASE	ND		6.8	MG/L	1	7/30/2015

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

LT - Result is less than requested MDC but greater than achieved MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **EX150730-1-1** Instrument ID: **Balance** Method: **EPA1664**

LCS Sample ID: **EX150730-1** Units: **MG/L** Analysis Date: **7/30/2015**
Client ID: Run ID: **EX150730-1A1** Prep Date: **7/30/2015** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
OIL AND GREASE	37.1	5	40		93	78-114				18	

LCSD Sample ID: **EX150730-1** Units: **MG/L** Analysis Date: **7/30/2015**
Client ID: Run ID: **EX150730-1A1** Prep Date: **7/30/2015** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
OIL AND GREASE	36.9	5	40		92	78-114		37.1	1	18	

MB Sample ID: **EX150730-1** Units: **MG/L** Analysis Date: **7/30/2015**
Client ID: Run ID: **EX150730-1A1** Prep Date: **7/30/2015** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
OIL AND GREASE	ND	5									

The following samples were analyzed in this batch: 1507505-1 1507505-2

W 1520831

CHAIN OF CUSTODY

1520831 1146/#8

Unified State Laboratories: Public Health
Bureau of Chemical and Environmental Services
4431 S 2700 W Taylorsville, UT 84119-8600
801 965 2400 Fax 801 969 3238
http://health.utah.gov/lab/chemistry

☐ Hand Delivered
☐ Shipped Samples
☐ Cooler Returned

System/Agency Name:	System/Agency Number:	Cost/Project Code:

REPORTING/CONTACT
Attn: Kyle Ashby
Address: 4431 S 2700 W
City, State, Zip: Taylorsville, Utah, 84129
Phone: 801-965-2400
Fax: 801-969-3238
Email: kdashby@utah.gov
Submitted By:

BILLING (list if different)
Special Code:
Attn:
Address:
City, State, Zip:
Phone:
Fax:

REQUESTED TESTS

Received Date and Time:

Sample Receipt Conditions

Yes	No	
☐	☐	Documentation complete
☐	☐	Proper containers and in-date
☐	☐	Containers intact
☐	☐	Within holding time
☐	☐	Coolant
☐	☐	Temperature within-range
☐	☐	Acceptable pH ☐ N/A
☐	☒	Custody Seals Intact

COLLECTION POINT DESCRIPTION	Collectors Initials	Collection Date (mm/dd/yy)	Collection Time (24 hr)	COMMENTS	Oil and Grease					Receipt temperature	Receipt pH	LAB NUMBER
~~Left Fork~~ Bear Creek					X							201504443
~~Bear Creek~~ Left Fork					X							201504444

Dispatched By:	Date and Time:	Courier Company Name:	Invoice/Airbill #:
Relinquished By:	Date and Time: 7/23/15 16:17	Received by:	Date and Time: 07/23/2015 16:17
Relinquished to USL:PH by:	Date and Time:	Received at USL:PH by:	Date and Time:

ALS - SALT LAKE CITY-RELATED INFORMATION REPORT (CRIR) 1520831

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: Unified State Laboratories Public Health Project/Task/Site: Oil and Grease

Date/Time of Receipt: _____ Number of Coolers Received: 1

Condition of Coolers:	(Acceptable)/Unacceptable	Temperature Control:	Present/No/(Included)
Cooler Custody Seals:	Present/(Absent)/NA	Location Temp Taken:	Control/(Between Samples)
	Intact/Broken/(NA)	Are all temperatures within	
Container Custody Seals:	Present/(Absent)/NA	project specific guidelines?	(Yes)/No/NA
	Intact/Broken/(NA)	VOA Headspace Present?	Yes/No/(NA)
Ice Present:	(Yes)/No/NA		
	Frozen/Melted/(NA)		

pH Check Performed:	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	(Yes)/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	TOC Preserved	Yes/No/NA
					Gross A B, Gamma Spec	Yes/No/NA
Residual Chlorine Check Performed:	8270	Yes/No/NA	8310	Yes/No/NA	8330	Yes/No/NA
	8081	Yes/No/NA	8151	Yes/No/NA		

Cooler Received	ALS Cooler No.	Temp.	Cooler Received	ALS Cooler No.	Temp.	Cooler Received	ALSL Cooler No.	Temp.
1	C15 6314	5 °C	4	C15	°C	7	C15	°C
2	C15	°C	5	C15	°C	8	C15	°C
3	C15	°C	6	C15	°C	9	C15	°C

Taken By: _____ (Signature) Thomas Carlson (Printed Name) 07/23/2015 (Date)

CLIENT-RELATED INFORMATION

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☒ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

BRIEFLY DESCRIBE THE PROBLEM AND THE ACTION TAKEN:

Client hand delivered
Samples are in 1000mL Clear glass containers.

E-mailed to Client? YES ☐ NO ☐

Response Required Within 24 Hours

PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

UTAH DEPARTMENT OF HEALTH

CHAIN OF CUSTODY

Utah Public Health Laboratory
Chemical and Environmental Services
4431 S 2700 W Taylorsville, UT 84129-8600
801 965 2400 Fax 801 969 3238
http://health.utah.gov/lab/chemistry

☑ Hand Delivered
☐ Shipped Samples
☐ Cooler Returned

System/Agency Name:	System/Agency Number:	Cost/Project Code:	REQUESTED TESTS	Received Date and Time:
Division of Oil, Gas & Mining	WT1177	901B	See attached sheet	

REPORTING/CONTACT
Attn:
Address:
City, State, Zip:
Phone:
Fax:
Email:
Submitted By:

BILLING (list if different)
Special Code:
Attn:
Address:
City, State, Zip:
Phone:
Fax:

Sample Receipt Conditions

Yes	No	
☑	☐	Documentation complete
☑	☐	Proper containers and in-date
☑	☐	Containers intact
☐	☑	Within holding time
☑	☐	Coolant
☐	☐	Temperature within-range
☑	☐	Acceptable pH ☐ N/A
☐	☑	Custody Seals Intact

COLLECTION POINT DESCRIPTION	Collectors Initials	Collection Date (mm/dd/yy)	Collection Time (24 hr)	COMMENTS	Receipt temperature	Receipt pH	LAB NUMBER
Bear Creek 1	JCH	7/9/15	12:50 pm	TCx1 O&Gx1 DMx1	1.4 5.2 6.1	NA cc	201504443 07/23/2015 12:13:
Bear Creek 2	JCH	7/9/15	12:35 pm	TCx1 O&Gx1 DMx1	2.9 5.5 2.4	NA cc	201504444 07/23/2015 12:13:

Dispatched By:	Date and Time:	Courier Company Name:	Invoice/Airbill #:
Relinquished By:	Date and Time:	Received by:	Date and Time:
Relinquished to USL:PH By: Joseph Hefnick	Date and Time: 7/23/15 12:12 PM	Received at USL:PH by:	Date and Time: 7-23-15 1212

some chem tests need post holding

Need several Nutrient requests but no Nutrient sample was submitted David emailed Amanda

no seals present at time of receipt.

JUST THE STREAM PARAMETERS

Table 2: Water Quality Statistics by Type

Type	Parameter	Units	Minimum	Maximum	Mean	Count of Detects	Count of Non-Detects	UPDES Water Quality Standard: Domestic	Rec & Aesth	Agriculture	Aquatic: 3A Chronic	Aquatic: 3A Acute
Stream	Potassium	mg/l	0.1	36.83	6.93	235	11					
	Sodium	mg/l	2.33	870.86	38.24	248	2					
	Bicarbonate(HCO3-)	mg/l	174	877	314.73	94	0					
	Carbonate (CO3-2)	mg/l	0	20	8.14	35	59					
	Chloride	mg/l	2	1389	46.21	258	0					
	Sulfate	mg/l	4	6000	485.77	245	0					
	Aluminum, Dissolved	mg/l	n/a	n/a	n/a	0	87				0.087	0.75
	Arsenic, Dissolved	mg/l	n/a	n/a	n/a	0	87	0.01		0.1	0.15	0.34
	Boron, Dissolved	mg/l	0.01	0.48	0.08	64	8					
	Cadmium, Dissolved	mg/l	n/a	n/a	n/a	0	88	0.01		0.01	0.00025	0.002
	Copper, Dissolved	mg/l	0.01	0.01	0.01	1	88			0.2	0.009	0.013
	Iron, Dissolved	mg/l	0.05	0.44	0.09	14	237					
	Iron, Total	mg/l	0.05	115.43	5.13	220	37					
	Lead , Dissolved	mg/l	n/a	n/a	n/a	0	88	0.015		0.1	0.0025	0.065
	Manganese, Dissolved	mg/l	0.002	0.121	0.02	70	181					
	Manganese, Total	mg/l	0.002	2.818	0.12	198	58					
	Molybdenum, Dissolved	mg/l	0.023	0.04	0.03	3	69					
	Selenium, Dissolved	mg/l	0.01	0.02	0.02	2	75	0.05		0.05	0.0048	0.0154
	Zinc, Dissolved	mg/l	0.004	2.056	0.10	30	57					
	Nitrate	mg/l	0.01	7	0.49	51	55		4	4		
	Nitrite	mg/l	0	4.03	0.30	15	90					
	Nitrogen (Ammonia)	mg/l	0	0.9	0.29	11	84					
	Phosphate	mg/l	0	0.08	0.02	11	51		0.05	0.05		
Well	Flow	gpm	0	1783	348.59	17	0					
	Water Level	feet	19	1783.3	1256.25	107	0					
	Temp	Deg. C	9	9	9.00	1	0				27	

Source: Rule R317-2 Standards of Quality for Waters of the State, http://www.rules.utah.gov/publicat/code/r317/r317-002.htm#T16

Trace Metal Standards given for a hardness of 100 mg/l

CMG - Calc Lead

(Sb) The one hour average concentration of total ammonia nitrogen (in mg/l as N) does not exceed, more than once every three years on the average the acute criterion calculated using the following equations

Class 3A:

$$\text{mg/l as N (Acute)} = (0.275/(1+10^{7.204-pH}))+(39.0/(1+10^{pH-7.204}))$$

Class 3B, 3C, 3D

$$\text{mg/l as N (Acute)} = (0.411/(1+10^{7.204-pH}))+(58.4/(1+10^{pH-7.204}))$$

Metals ran 25 total

No filtered samples submitted.

201504443

201504444

* Calcium combines "Total Calcium (mg/l)" and "Calcium Dissolved (mg/l)"
* Sodium combines "Total Sodium (mg/l)" and "Sodium Dissolved (mg/l)"
* Magnesium combines "Total Magnesium (mg/l)" and "Magnesium Dissolved (mg/l)"
* Potassium combines "Total Potassium (mg/l)" and "Potassium Dissolved (mg/l)"
* Nitrate combines "NO3+NO3 AS N (mg/l)" and "NITRATE AS N (mg/l)"

JUST THE STREAM PARAMETERS

Table 2: Water Quality Statistics by Type

Type	Parameter	Units	Minimum	Maximum	Mean	Count of Detects	Count of Non-Detects	UPDES Water Quality Standard				
											Aquatic	
								Domestic	Rec & Aesth	Agriculture	1A-Chronic	3-A Acute
Spring	Flow	gpm	0	580	18.30	558	8					
	Water Level	feet	8.2	8.2	8.20	1	0					
	pH	S.U.	2.83	9.18	7.64	593	0	6.5-9.0	6.5-9.0	6.5-9.0		
	Specific Conductivity	umhos/cm	2.2	2890	742	608	0					
	Temp	Deg. C	1.4	67	11.1	598	0				27	
	Dissolved Oxygen	mg/l	5.1	10	7.6	11	1				>6.5	>5
	Specific Conductivity	umhos/cm	350	2700	952	380	0					
	Total Dissolved Solids	mg/l	149	2940	653	389	1			1200		
	Total Hardness (as CaCO3)	mg/l	143	1436	516.28	399	0					
	Total Settleable Solids	mg/l	0	2	0.40	5	9					
	Total Suspended Solids	mg/l	8	69	24.78	9	5					
	Oil and Grease	mg/l	0	2.1	0.96	9	99					
	Calcium	mg/l	8.36	176	90.37	395	0					
	Magnesium	mg/l	0.006	253	70.32	399	3					
	Potassium	mg/l	0	89.7	6.54	321	68					
	Sodium	mg/l	1.66	88	13.85	382	6					
	Bicarbonate(HCO3-)	mg/l	212	660	363.76	185	0					
	Carbonate (CO3-2)	mg/l	0	10	4.46	13	171					
	Chloride	mg/l	1	66	9.62	397	0					
	Sulfate	mg/l	2	1158	222.89	389	0					
	Aluminum, Dissolved	mg/l	n/a	n/a	n/a	0	180					
	Arsenic, Dissolved	mg/l	0	0.015	0.01	3	188				0.087	0.75
	Boron, Dissolved	mg/l	0.01	0.9	0.10	157	28	0.01		0.1	0.15	0.34
	Cadmium, Dissolved	mg/l	0.01	0.01	0.01	1	188					
	Copper, Dissolved	mg/l	0.01	0.44	0.16	3	188	0.01		0.01	0.00025	0.002
	Iron, Dissolved	mg/l	0.05	0.54	0.18	10	375			0.2	0.009	0.013
	Iron, Total	mg/l	0	38.5	0.79	142	255					
	Lead , Dissolved	mg/l	0.02	0.2	0.11	2	207					
	Manganese, Dissolved	mg/l	0.002	0.1	0.02	62	318	0.015		0.1	0.0025	0.065
	Manganese, Total	mg/l	0	1.41	0.03	134	260					
	Molybdenum, Dissolved	mg/l	0.005	0.2	0.06	5	183					
	Selenium, Dissolved	mg/l	0.009	0.04	0.02	18	160	0.05		0.05	0.0046	0.0154
	Zinc, Dissolved	mg/l	0.004	3.46	0.08	61	137					
	Nitrate	mg/l	0.01	2.54	0.35	175	39		4	4		
	Nitrite	mg/l	0	0.1	0.04	14	198					
	Nitrogen (Ammonia)	mg/l	0	0.4	0.16	28	177					
	Phosphate	mg/l	0	0.12	0.02	38	90		0.05	0.05		
Stream	Flow	gpm	0	800	61.56	400	6					
	pH	S.U.	5.6	9.9	8.22	353	0	6.5-9.0	6.5-9.0	6.5-9.0		
	Specific Conductivity	umhos/cm	7.8	8350	1024.29	381	0					
	Temp	Deg. C	0.5	80.8	14.56	370	0				27	
	Dissolved Oxygen	mg/l	0.4	70	8.42	297	0				>8.5	>5.3
	Specific Conductivity	umhos/cm	302	6730	1301.43	239	1					
	Total Dissolved Solids	mg/l	163	6181	990.77	247	0			1200		
	Total Hardness (as CaCO3)	mg/l	164	3898	699.53	256	1					
	Total Settleable Solids	mg/l	0	72	8.55	48	147					
	Total Suspended Solids	mg/l	0	9580	524.46	155	41					
	Oil and Grease	mg/l	0	33	7.95	15	181					
	Calcium	mg/l	8.3	494	101.62	258	0					
	Magnesium	mg/l	12	647	108.11	257	0					

JUST THE STREAM PARAMETERS

201504443

201504444

Thursday, July 30, 2015

Kevin Griffiths
ALS Environmental
960 West LeVoy Drive
Salt Lake City, UT 84123

Re: ALS Workorder: 1507505
Project Name:
Project Number: 1520831

Dear Mr. Griffiths:

Two water samples were received from ALS Environmental, on 7/29/2015. The samples were scheduled for the following analysis:

Hexane Extractable Material

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff R. Kujawa
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO000782008A
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280

ALS Environmental

1507505

Oil and Grease:
The samples were prepared and analyzed according to EPA Method 1664A procedures utilizing the current revision of SOP 671.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1507505
Client Name: ALS Environmental
Client Project Name:
Client Project Number: 1520831
Client PO Number: 1520831

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Bear Creek	1507505-1		WATER	09-Jul-15	12:30
Left Fork	1507505-2		WATER	09-Jul-15	12:35

ALS Environmental
CHAIN-OF-CUSTODY

1507505

Project / Job / Task:	*Split:*	**Workorder ID:** 1520831	Level: ENV_LVL2
Client: ALS Environmental SLC		**Account:** 8001	**Type:** 1000AG
Comments:			**Preservatives** HCL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Count	Requested Analysis: EPA 1664 0.16
1	(1)	Bear Creek	1520831001		Water	A	1	A
2	(2)	Left Fork	1520831002		Water	A	1	A
3								
4								
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	07/23/2015 16:17	ALS Sample Receiving	Sample Login
Fed Ex	07/27/15 16:00	Fed Ex	XFER Ft.Collins
Fed Ex			

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Fed Ex	7/29/15 0925	Eva Peters	

5 of 10

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS SLC Workorder No: 1507505

Project Manager: JRK Initials: ECP Date: 7/29/15

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	(NONE)	YES	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	RAD ONLY	(YES)	NO

Cooler #:	1						
Temperature (°C):	4.8°						
No. of custody seals on cooler:	0						
DOT Survey/ Acceptance Information: External µR/hr reading:	11						
Background µR/hr reading:	12						

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

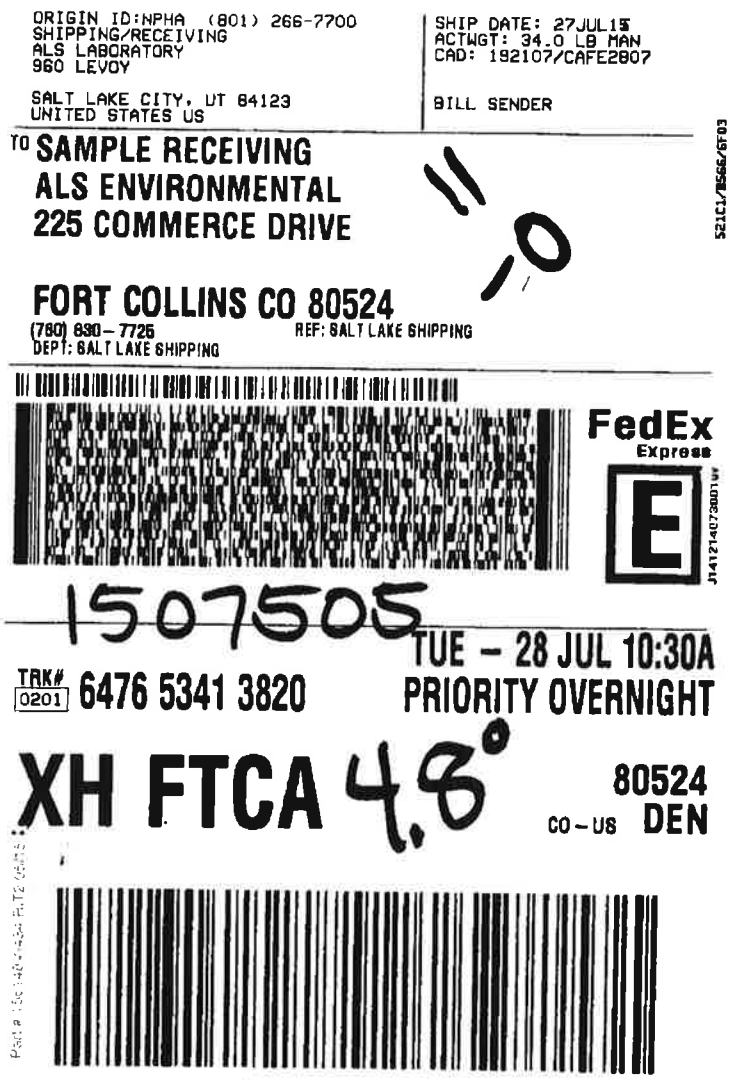
Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO (N/A) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 7-29-15

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Do Not Lift Using This Tag



ORIGIN ID:NPHA (801) 266-7700
SHIPPING/RECEIVING
ALS LABORATORY
960 LEVOY

SALT LAKE CITY, UT 84123
UNITED STATES US

SHIP DATE: 27JUL15
ACTWGT: 34.0 LB MAN
CAD: 192107/CAFE2807

BILL SENDER

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(780) 890-7725
DEPT: SALT LAKE SHIPPING

REF: SALT LAKE SHIPPING

11.0

521C1/BE66/6F03

FedEx Express

J14121407300iw

1507505

TUE - 28 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 0201 6476 5341 3820

XH FTCA 4.8°

80524
CO-US DEN